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# RECONNECTING THE WORLD



## CORSIA MRV system: Monitoring, Reporting and Verification of CO<sub>2</sub> emissions (Annex 16, Volume IV)

ICAO Secretariat



# CORSIA MRV Requirements

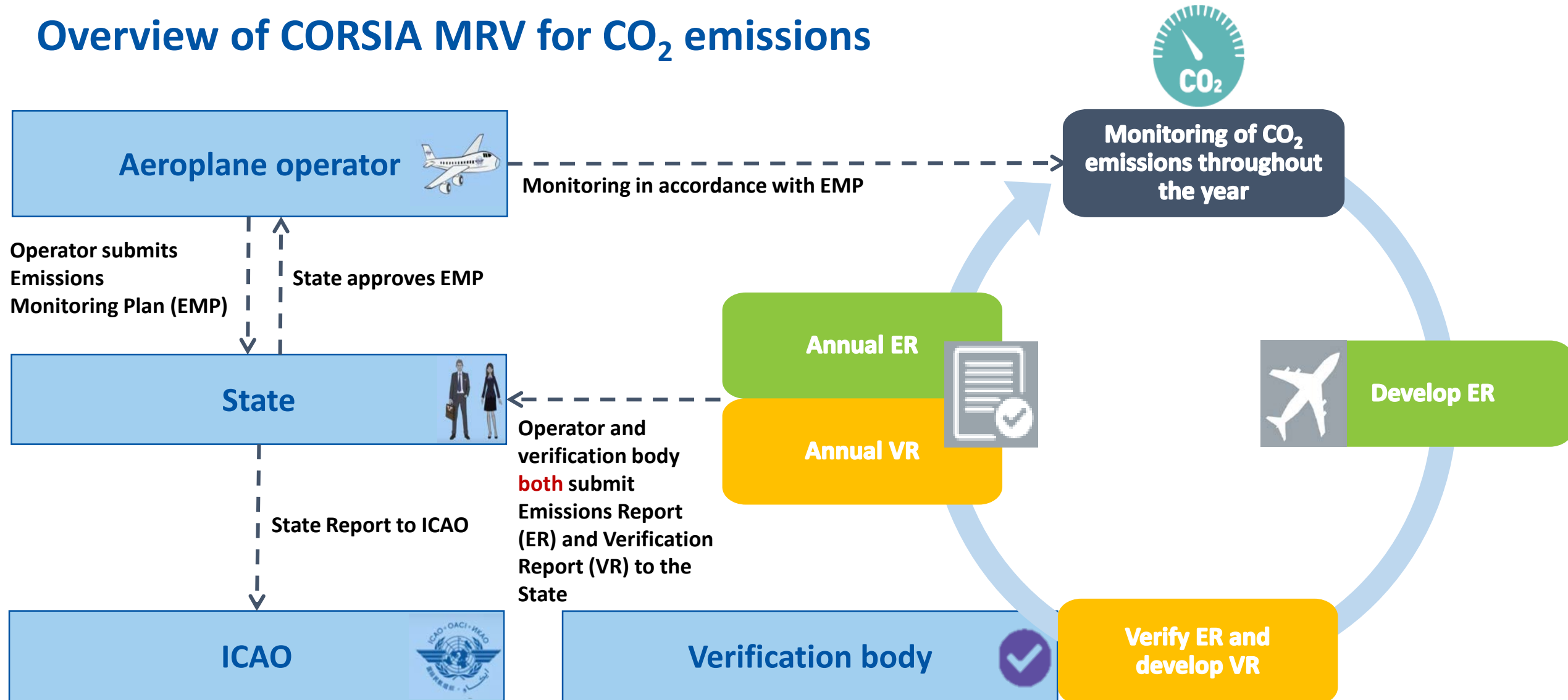
- Under CORSIA, the MRV of CO<sub>2</sub> emissions has to be undertaken if these are generated:
  - From an operator that produces annual CO<sub>2</sub> emissions greater than 10,000 tonnes
  - From international operations on or after 1 January 2019
  - From the use of an aeroplane with a maximum certificated take-off mass of greater than 5,700 kg
  - With the exception of humanitarian, medical and firefighting operations

Reference: Annex 16, Volume IV, Part II, Chapter 2, 2.1



# CORSIA MRV system — Overview

## Overview of CORSIA MRV for CO<sub>2</sub> emissions



# States' Reporting Requirements



List of attributed aeroplane operators



List of accredited verification bodies



CO<sub>2</sub> emissions



CORSIA eligible fuels



Cancelled emissions units

# Timing of Reporting

Information type	Baseline		Pilot Phase			First Phase		
	2019	2020	2021	2022	2023	2024	2025	2026
Aeroplane Operators	✓	✓	✓	✓	✓	✓	✓	✓
Verification Bodies	✓	✓	✓	✓	✓	✓	✓	✓
CO <sub>2</sub> Emissions		✓ <i>2019 data</i>	✓ <i>2020 data</i>	✓ <i>2021 data</i>	✓ <i>2022 data</i>	✓ <i>2023 data</i>	✓ <i>2024 data</i>	✓ <i>2025 data</i>
CORSIA Eligible Fuels*		<i>Optional</i> <i>2019 data</i>	<i>Optional</i> <i>2020 data</i>	✓ <i>2021 data</i>	✓ <i>2022 data</i>	✓ <i>2023 data</i>	✓ <i>2024 data</i>	✓ <i>2025 data</i>
Cancelled Emissions Units							✓ <i>2021-2023</i> <i>data</i>	

\* *Information can be reported annually or once at the end of each three-year cycle.*

Standards and Recommended Practices for the MRV of CO<sub>2</sub> emissions are included in [Annex 16, Volume IV, Part II, Chapter 2](#)

## 2.1 Applicability of MRV requirements

## 2.2 Monitoring of CO<sub>2</sub> emissions (+ Appendices 2, 3, 4)

## 2.3 Reporting of CO<sub>2</sub> emissions (+ Appendix 5)

## 2.4 Verification of CO<sub>2</sub> emissions (+ Appendix 6)

## 2.5 Data gaps

## 2.6 Error correction to Emissions Reports

### CHAPTER 2. MONITORING, REPORTING AND VERIFICATION (MRV) OF AEROPLANE OPERATOR ANNUAL CO<sub>2</sub> EMISSIONS

#### 2.1 Applicability of MRV requirements

*Note.— See also Chapter 1 for administration requirements of the State and aeroplane operator.*

2.1.1 The Standards and Recommended Practices of this Chapter shall be applicable to an aeroplane operator that produces annual CO<sub>2</sub> emissions greater than 10 000 tonnes from the use of an aeroplane(s) with a maximum certificated take-off mass greater than 5 700 kg conducting international flights, as defined in 1.1.2, on or after 1 January 2019, with the exception of humanitarian, medical and firefighting flights.

2.1.2 **Recommendation.**— *When considering whether a flight is international or domestic, an aeroplane operator and a State should use, for the purpose of this Volume, Doc 7910 — Location Indicators, which contains a list of aerodromes and the State they are attributed to. Further guidance material is also provided in the Environmental Technical Manual (Doc 9501), Volume IV — Procedures for demonstrating compliance with the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).*

2.1.3 The Standards and Recommended Practices of this Chapter shall not be applicable to international flights, as defined in 1.1.2, preceding or following a humanitarian, medical or firefighting flight provided such flights were conducted with the same aeroplane, and were required to accomplish the related humanitarian, medical or firefighting activities or to reposition thereafter the aeroplane for its next activity. The aeroplane operator shall provide supporting evidence of such activities to the verification body or, upon request, to the State.

2.1.4 The Standards and Recommended Practices of this Chapter shall be applicable to a new entrant aeroplane operator from the year after it meets the requirements in 2.1.1 and 2.1.3.

2.1.5 **Recommendation.**— *If the aeroplane operator is close to the threshold of annual CO<sub>2</sub> emissions, as defined in 2.1.1 and 2.1.3, from international flights, as defined in 1.1.2, it should consider engaging with the State to which it is attributed for guidance. Likewise, the State should carry out oversight of the aeroplane operators attributed to it, and engage with any that it considers may be close to or above the threshold. The aeroplane operator with annual CO<sub>2</sub> emissions below the threshold may choose to voluntarily engage with the State to which it is attributed.*

*Note.— See Attachment B Figure B-1 for a process flowchart on the determination of the applicability of Chapter 2 to international flights, as defined in 1.1.2.*

#### 2.2 Monitoring of CO<sub>2</sub> emissions

##### 2.2.1 Eligibility of monitoring methods

2.2.1.1 The aeroplane operator shall monitor and record its fuel use from international flights, as defined in 1.1.2 and 2.1, in accordance with an eligible monitoring method as defined in 2.2.1.2 and 2.2.1.3, and approved by the State to which it is attributed. Following approval of the Emissions Monitoring Plan, the aeroplane operator shall use the same eligible monitoring method for the entire compliance period.

**From 1 January 2019...**

**All aeroplane operators conducting international flights are required to monitor the CO<sub>2</sub> emissions from these flights**

**All States with operators performing international flights have to establish the monitoring, reporting and verification (MRV) system for CO<sub>2</sub> emissions**



- Under CORSIA, the MRV of CO<sub>2</sub> emissions has to be undertaken if these are generated:
  - From an operator that produces annual CO<sub>2</sub> emissions greater than 10,000 tonnes
  - From international operations on or after 1 January 2019
  - From the use of an aeroplane with a maximum certificated take-off mass of greater than 5,700 kg
  - With the exception of humanitarian, medical and firefighting operations

- **Standardized templates** are available in the ICAO CORSIA website to facilitate implementation of the CORSIA MRV system
- **Templates** to be used by aeroplane operators:
  - Emissions Monitoring Plan
  - Emissions Report
  - CORSIA eligible fuels supplementary information to the Emissions Report
- **Templates** to be used by verification bodies:
  - Verification Report
- States will report to ICAO through the CORSIA Central Registry (CCR)

## CORSIA»» IMPLEMENTATION

- Assembly Resolution A40-19
  - (EN) (FR) (SP) (RU) (AR) (ZH)
- Reservation to Resolution A40-19
- SARPs - Annex 16 Volume IV
- Environmental Technical Manual - Volume IV
  - » **Templates**
- ICAO CORSIA Implementation Elements
  - » CORSIA States for Chapter 3 State Pairs
  - » ICAO CORSIA CO<sub>2</sub> Estimation and Reporting Tool (CERT)
  - » CORSIA Eligible Fuels
  - » CORSIA Eligible Emissions Units
  - » CORSIA Central Registry (CCR)

**Templates are here!**

Additional Material for CORSIA Implementation



## ACT»» CORSIA

- CORSIA Buddy Partnerships
- Model Regulations
- Frequently Asked Questions
- Brochure and Leaflets
- Videos
- Seminars
- Online Tutorials
- Background Information



# Monitoring of CO<sub>2</sub> emissions in CORSIA

## Emissions Monitoring Plan (EMP)

- **Collaborative tool between the State and the aeroplane operator:**
  - Identifies the most appropriate means and methods for CO<sub>2</sub> emissions monitoring on an operator-specific basis
  - Facilitates the reporting of required information to the State
  
- **Aeroplane operators prepare EMP on the basis of:**
  - Annex 16, Volume IV, Appendix 4, detailing EMP contents
  - ETM, Volume IV, section 3.1, containing guidance
  - Template (Excel format) available in the ICAO CORSIA website

## CORSIA EMISSIONS MONITORING PLAN (EMP)

### CONTENTS

- 1 [Version control of Emissions Monitoring Plan](#)
- 2 [Aeroplane operator identification and description of activities](#)
- 3 [Fleet and operations data](#)
- 4 [Methods and means for calculating emissions](#)
  - 4.1 [Fuel Use Monitoring Method: Method A](#)
  - 4.2 [Fuel Use Monitoring Method: Method B](#)
  - 4.3 [Fuel Use Monitoring Method: Block-off / Block-on](#)
  - 4.4 [Fuel Use Monitoring Method: Fuel Uplift](#)
  - 4.5 [Fuel Use Monitoring Method: Fuel Allocation with Block Hour](#)
  - 4.6 [ICAO CORSIA CO<sub>2</sub> Estimation and Reporting Tool \(CERT\)](#)
- 5 [Data management, data flow, control system, risk analysis and data gaps](#)

### Template Information

Template provided by:	
Version (publication date):	

*Note: For the purpose of this template, international flight is defined as in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2, 2.1.*

## Emissions Monitoring Plan (EMP) - Revisions

- States' interaction with operators regarding EMPs is not a "one-shot" that happened in 2019:
  - An operator shall resubmit the EMP to the State for approval **if "a material change" is made** to the Plan
  - A new entrant shall submit an EMP to the State within three months of being subject to the CORSIA MRV requirements
- Selected examples of material changes to an EMP:

Type of change to an EMP	Material change?	Follow-up actions for an operator and State
Means of attributing international flights to the operator	Yes	Operator: Resubmit the EMP to State State: Review and re-approve the EMP
Fuel Use Monitoring Method	Yes	Operator: Resubmit the EMP to State State: Review and re-approve the EMP
Eligibility to use ICAO CORSIA CERT	Yes	Operator: Resubmit the EMP to State State: Review and re-approve the EMP

## Emissions Monitoring Options

- An aeroplane operator shall monitor and record its fuel use from international flights in accordance with an eligible monitoring method:
  - **Five fuel use monitoring methods**
  - **ICAO CORSIA CO<sub>2</sub> Estimation and Reporting Tool (CERT)**
- Eligibility to use one of the **five fuel use monitoring methods** (2019-2020) or the **CERT**



## Emissions Monitoring Options – **Five Fuel Use Monitoring Methods**

Method A

Method B

Block-off / Block-on

Fuel Uplift

Fuel Allocation with Block Hour

- Those operators that are not eligible to use the ICAO CORSIA CERT, have five Fuel Use Monitoring Methods to choose from
- An operator can select different methods for different aeroplane types
- Methods represent the most accurate established practices, and are equivalent; there is no hierarchy for selecting a method
- Each method uses different fuel measurement points.

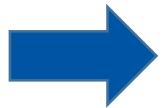
- **Specifications** of the methods: Annex 16, Volume IV, Appendix 2
- **Guidance** on the implementation of the methods: ETM, Volume IV (Doc 9501), Chapter 3, 3.1.4

## Emissions Monitoring Options – ICAO CORSIA CERT

**CERT**  
ICAO CORSIA  
CO<sub>2</sub> Estimation and Reporting Tool  
(accessible through the ICAO CORSIA website)

*The ICAO CORSIA CERT is a tool to help aeroplane operators estimate and report their international aviation emissions (Annex 16, Volume IV, Appendix 3)*

- **All operators** can use the ICAO CORSIA CERT for a preliminary CO<sub>2</sub> assessment, and for filling in possible data gaps
- **Only eligible operators** can use the ICAO CORSIA CERT for:
  - Estimating CO<sub>2</sub> emissions; and
  - Populating the Emissions Report template
- ICAO CORSIA CERT is available on the ICAO CORSIA webpage



More information on the ICAO CORSIA CERT to be provided during this Session 1



# Preparation of Emissions Reports by Aeroplane Operators

- CORSIA requires aeroplane operators conducting international flights<sup>(\*)</sup> to report on related CO<sub>2</sub> emissions information
  - First reporting year: **2019**
  - Frequency of reporting: on an annual basis
  - Reporting format: **Emissions Report**
  - Reporting recipient: State



*(\*) aeroplane operators that produce annual CO<sub>2</sub> emissions greater than 10 000 tonnes from international flights conducted by aeroplanes with a maximum certificated take-off mass greater than 5 700 kg (with the exception of humanitarian, medical and firefighting flights)*

## Emissions Report - Rationale

- A means to communicate CO<sub>2</sub> emissions data from aeroplane operator to State
- Purpose of the Emissions Report:
  - Communication mechanism between AO and State for CO<sub>2</sub> emissions data and other info
  - Key document within the CORSIA MRV as it includes all relevant CO<sub>2</sub> emissions data as described in Annex 16, Volume IV, Appendix 5
  - Basis for calculation of operator's offsetting requirements from 2021 onwards

## CORSIA

### EMISSIONS REPORT (ER)

#### CONTENTS

- 1 [Aeroplane operator identification and description of activities](#)
- 2 [Underlying basic information of the Emissions Report](#)
- 3 [Aeroplane fleet and fuel types](#)
- 4 [Fuel density](#)
5. [Reporting](#)
  - 5.1 [Reporting - State pairs](#)
  - 5.2 [Reporting - Aerodrome pairs](#)
- 6 [Data gaps](#)

#### Template Information

Template provided by:	
Version (publication date):	

*Note: For the purpose of this template, international flight is defined as in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2, 2.1.*

## Emissions Report – Contents

- Aeroplane operator information
  - Name, contact information, State of attribution, etc.
- Reporting year (year during which emissions were monitored)
  - E.g. 2019 (for the Emissions Report to be prepared in 2020)
- Reference of the aeroplane operator's Emissions Monitoring Plan that is the basis for the emissions monitoring in the reporting year
  - Version number, date of approval, date of validity, date of last update, etc.
- List of operator's aeroplane fleet
  - Applicable to all operator's aeroplanes (with MTOM > 5 700 kg) operating international flights during the reporting year
  - Leased aeroplanes have to be included

## Emissions Report – Contents (cont'd)

- Details on use of ICAO CORSIA CERT (if operator is eligible for use of the Tool)
- Standard and / or actual density used to determine the fuel uplift in the reporting year
  - Standard value: 0.8 kg per litre
- Total fuel mass per type of fuel
  - When using ICAO CORSIA CERT, operators will not report this information
- Number of international flights during the reporting period, including:
  - Total number of operator's international flights during the reporting period
  - Breakdown per State pair (minimum information requirement) OR per aerodrome pair\*

*\* During the preparation of the Emissions Monitoring Plan, the operator will be informed by the State of the level of aggregation to be used when reporting on international flights*

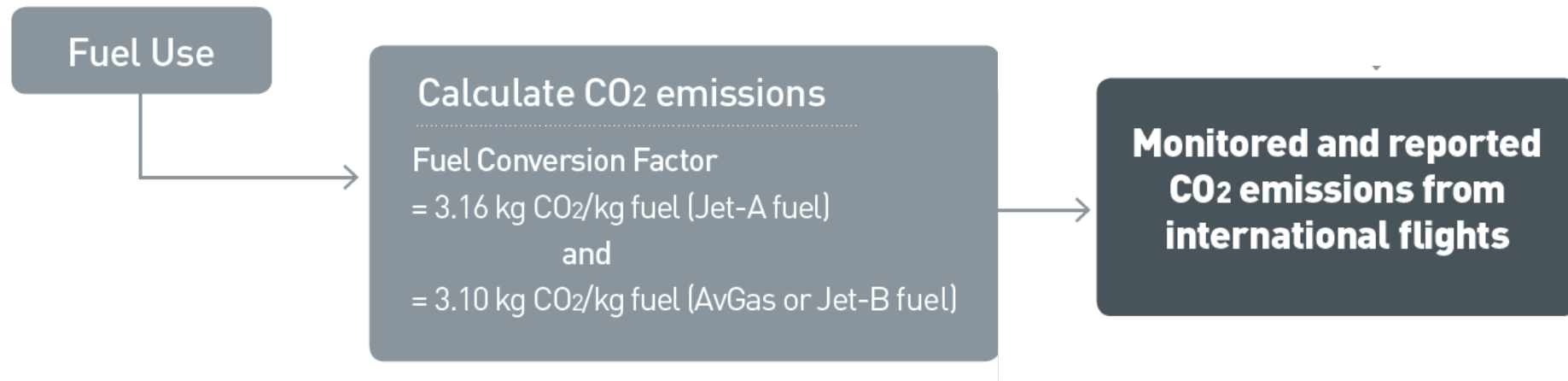
## Emissions Report – Contents (cont'd)

- CO<sub>2</sub> emissions:
  - Total CO<sub>2</sub> emissions from reported flights
  - Breakdown per State pair OR per aerodrome pair (same level of aggregation as for the reporting of the number of international flights)
  - From the start of CORSIA's pilot phase (i.e. reporting of CO<sub>2</sub> emissions for 2021 and beyond), reporting will include sub-totals for flights subject to offsetting requirements and flights not subject to offsetting requirements
- Information on verification body that has verified the Emissions Report
  - Name, contact information

## Emissions Report – Contents (cont'd)

- An operator using a Fuel Use Monitoring Method shall determine the CO<sub>2</sub> emissions by using the following equation:

$$CO_2 \text{ Emissions} = \text{Mass of fuel} * \text{Fuel Conversion Factor of given fuel type}$$



- ICAO CORSIA CERT automatically estimates the CO<sub>2</sub> emissions for aeroplane operators who have been approved to use the CERT

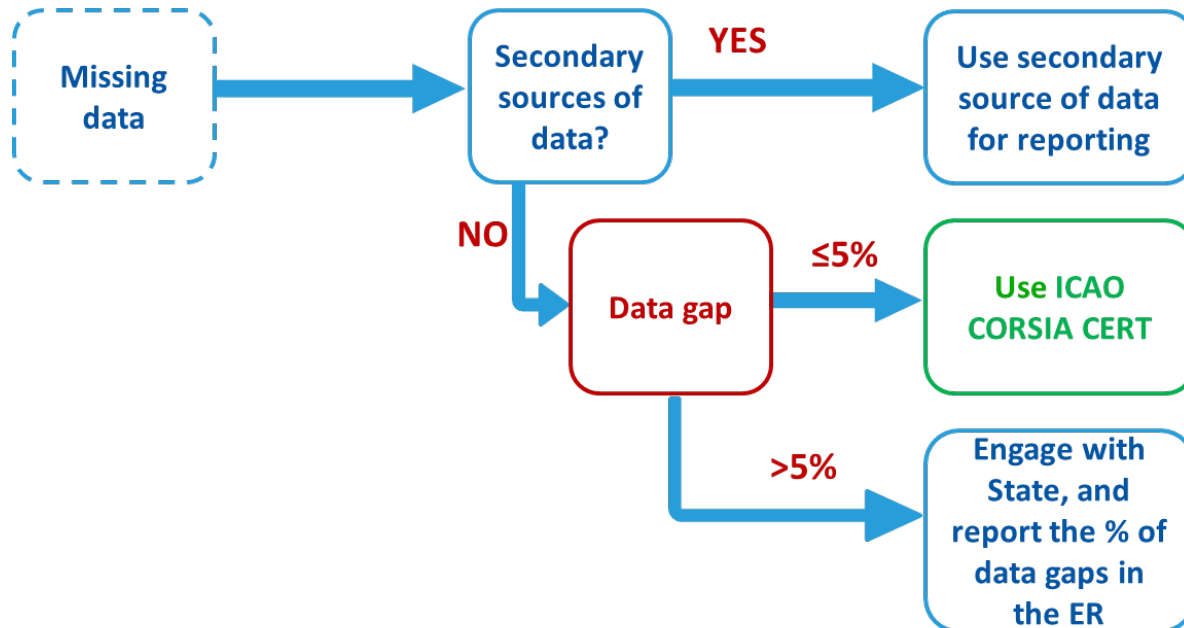
## Data gaps in Emissions Reports

- Gaps in emissions-related data can occur due to various reasons (e.g. irregular operations, data feed issues or critical system failures)
- Data gaps can be identified at various stages:
  - **By the aeroplane operator** when preparing the Emissions Report
  - **By the verification body** when receiving the Emissions Report submitted by the aeroplane operator  
*It can lead to an Emissions Report being assessed as “not satisfactory”*
  - **By the State** in its review of the verified Emissions Report submitted by the aeroplane operator and the verification body



## Data gaps in Emissions Reports

- Actions to address data gaps by the aeroplane operator
  - The aeroplane operator shall fill identified data gaps and correct systematic errors and misstatements prior to the submission of the Emissions Report



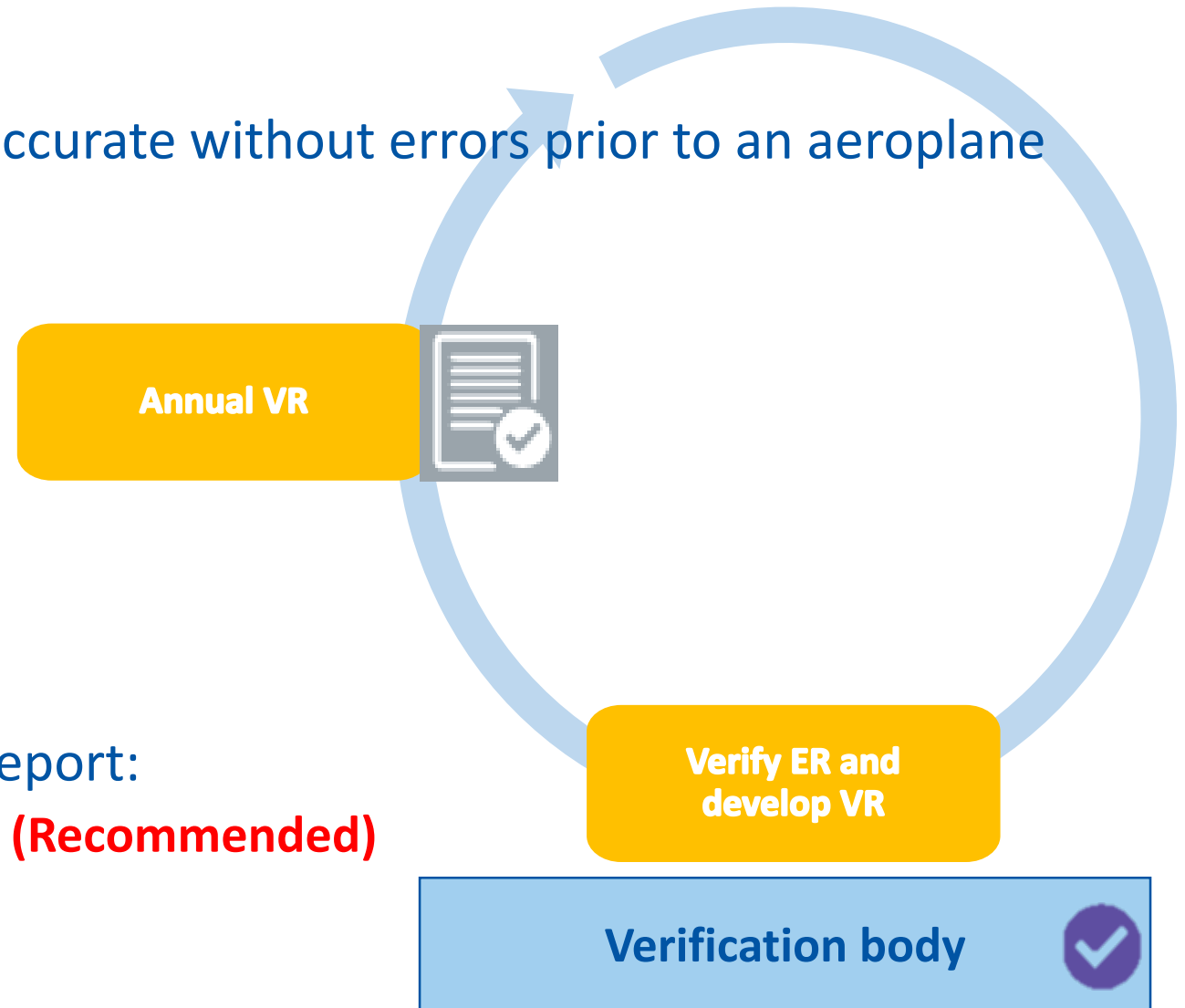
- Definition of the data gap threshold:
  - 2019-2020 period: 5 per cent of international flights
  - 2021-2035 period: 5 per cent of international flights subject to offsetting requirements



# Verification of Emissions Reports

## Verification in CORSIA - Rationale

- Process to ensure that the information is accurate without errors prior to an aeroplane operator's reporting to State
- Scope of CO<sub>2</sub> emissions verification:
  - Aeroplane operators' annual Emissions Reports are subject to verification
  - State reporting to ICAO is not subject to verification
- 3 steps for verification of CO<sub>2</sub> Emissions Report:
  - 1) **Pre-verification by aeroplane operator (Recommended)**
  - 2) **Verification by a verification body**
  - 3) **State's order-of-magnitude check**



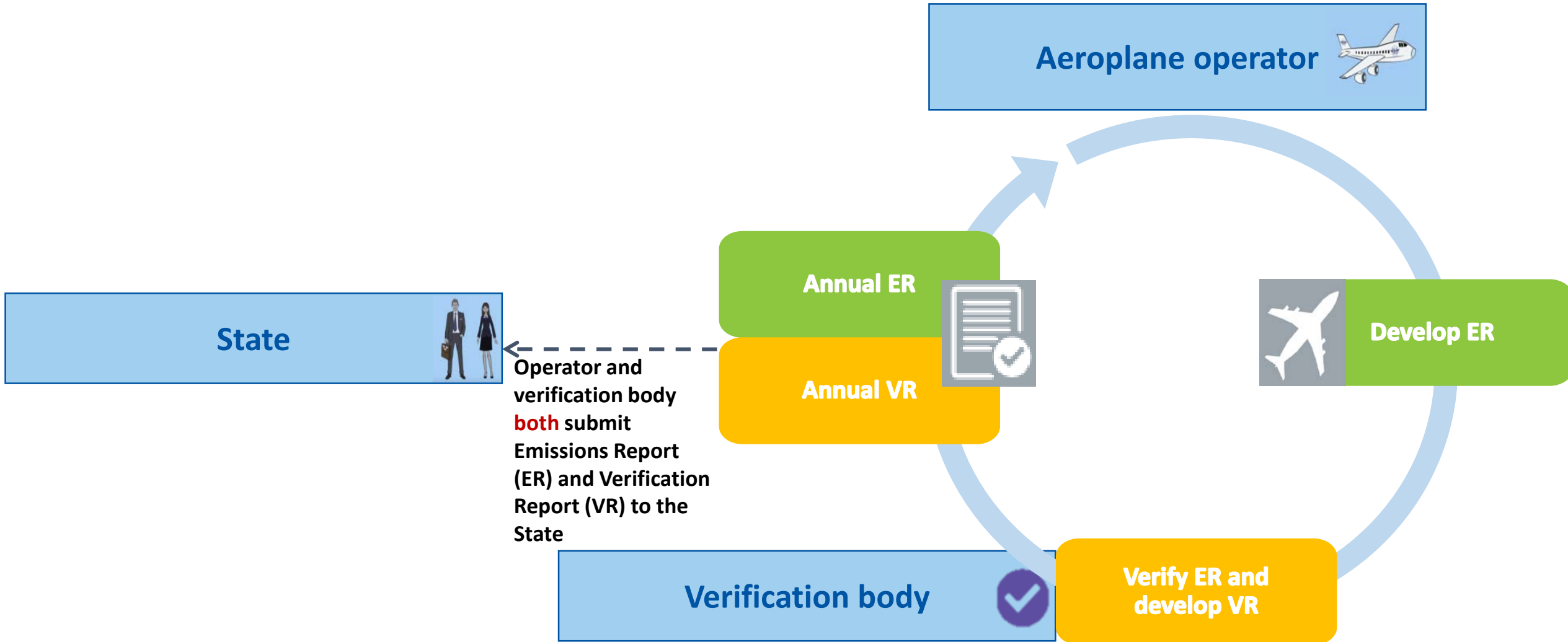
## Verification Report

- Contents of the VR is provided in the Annex 16, Volume IV, Appendix 6, 3.10.1
  - Includes all verification-related information
- CORSIA specific content:
  - Determination of compliance of the Emissions Report with the Emissions Monitoring Plan
  - Determination of any non-compliances of the Emissions Monitoring Plan with SARPs

<b>CORSIA</b>	
Verification Report	
<b>CONTENTS</b>	
<a href="#">Scope of Verification Report</a>	
<a href="#">Identification</a>	
<a href="#">Time allocation and scope of the verification</a>	
<a href="#">General information</a>	
<a href="#">Process and analysis</a>	
<a href="#">Conclusions</a>	
<a href="#">Concluding verification statement</a>	
<b>Template Information</b>	
Template provided by:	
Version (publication date):	

# Verification of Emissions Reports

## Submission of the verified Emissions Report to State



# State's order of magnitude check of Emissions Reports

## Rationale

- The objective of the State's order of magnitude check of an aeroplane operator's Emissions Reports is to assess the completeness of data reported by the operator
- For an operator with an Emissions Report verified as “satisfactory”, the order of magnitude check will take approximately 3 hours

## Guidance

- Table 3-9 of the ETM provides checklist for States' order of magnitude check of Emissions Reports

- Main sections:

- Aeroplane operator
- Emissions Report information
- Aeroplane fleet
- OPTION 1: State pairs
- OPTION 2: Aerodrome pairs
- Data gaps
- Verification body
- Change of data by State
- Communication with aeroplane operator
- Communication with verification body

*(Example of guidance in ETM, Vol. IV)*



No.	Question/Issue	Additional information	Status: OK/Yes/No/ Not Applicable	Notes and results of checks
<b>Aeroplane operator</b>				
1	Aeroplane operator/verification body both separately submit Emissions Report and Verification Report. Is the content of both submissions identical?	Minimum check: reported fuel consumption and number of flights. Get back to aeroplane operator in case of deviations.		
2	Is the name of the aeroplane operator given and unambiguous?	Ensure unambiguous identification of aeroplane operator. Get back to aeroplane operator in case of uncertainties.		
3	Is there a valid ICAO Designator for aeroplane operating agencies? Does it have the correct character length?	Ensure unambiguous identification of aeroplane operator. Get back to aeroplane operator in case of uncertainties.		
4	Basic information (address, AOC, etc.) plausible?	Ensure unambiguous identification of aeroplane operator. Get back to aeroplane operator in case of uncertainties.		



## Example – Check Amount of CO<sub>2</sub> Emissions Reported

- Is the amount of reported CO<sub>2</sub> emissions roughly plausible? (*ETM (Doc 9501), Volume IV, Table 3-9, #23*)
  - Since emissions factors are fuel type-specific, deviation might lead to implausible amount of calculated emissions

### Example:

An aeroplane operator has reported the following information in its ER:

- Total amount of Jet A1 Fuel = 250,000 tonnes (FCF = 3.16 tonnes of CO<sub>2</sub>/tonne of fuel)
- Total amount of AvGas = 50,000 tonnes (FCF = 3.10 tonnes of CO<sub>2</sub>/tonne of fuel)

You can use this information to calculate the total CO<sub>2</sub> emissions:

CO<sub>2</sub> emissions =  $(250,000 \times 3.16) + (50,000 \times 3.10) = 790,000 + 155,000 = 945,000$  tonnes



**Compare the result with total reported CO<sub>2</sub> emissions**

## Example – Check Number of Flights per Aeroplane

- Is the given information regarding number of flights plausible? (ETM (Doc 9501), Volume IV, Table 3-9, #24)
- Does the aeroplane operator report more than 3500 flights on an aerodrome pair? (ETM (Doc 9501), Volume IV, Table 3-9, #50)

### Example based on reporting Aerodrome pairs:

An aeroplane operator has reported the following information in its ER:

- Total no of flights per year = 7,500
- Total number of aeroplanes = 5

You can use this information to calculate an average number of flights per aeroplane:  
 Average =  $7,500 \text{ flights} / (365 \text{ days} \times 5 \text{ aeroplanes}) = \text{about } 4 \text{ flights/aeroplane/day}$



**Could be considered as plausible for an operator on short- and medium-haul flights**

# State's order of magnitude check of ERs

## Example – Check Fuel Consumption per Flight

- Are there aerodrome pairs with more than 250 tonnes fuel consumption per flight? (ETM (Doc 9501), Volume IV, Table 3-9, #51)
- Are there aerodrome pairs with less than 2.5 tonnes fuel consumption per flight? (ETM (Doc 9501), Volume IV, Table 3-9, #52)

### Example:

Departure Aerodrome	Arrival Aerodrome	Total No of Flights	Total Amount of Fuel (tonnes)	Average Fuel Consumption
AAAA	BBBB	150	250	1.7
AAAA	CCCC	150	2,000	13.3
AAAA	DDDD	40	15,000	375.0

$250/150 = 1.7$



# State reporting of CO<sub>2</sub> data to ICAO

- CORSIA requires States with aeroplane operators conducting international flights<sup>(\*)</sup> to report on related CO<sub>2</sub> emissions information:
  - First reporting year: **2019**
  - Frequency of reporting: on an annual basis
  - Reporting recipient: ICAO
  - Reporting through the CORSIA Central Registry (CCR)

State



State Report to ICAO

ICAO



*(\*) aeroplane operators that produce annual CO<sub>2</sub> emissions greater than 10 000 tonnes from international flights conducted by aeroplanes with a maximum certificated take-off mass greater than 5 700 kg (with the exception of humanitarian, medical and firefighting flights)*

## State reporting of CO<sub>2</sub> emissions to ICAO

- Total annual CO<sub>2</sub> emissions (in tonnes):
  - Per State pair
  - For each State pair, data aggregated for all aeroplane operators attributed to the State that conduct operations in that State pair
    - a) For a given State pair, no operator-specific data
    - b) For a given State pair, emissions from operators not attributed to the State are not taken into consideration

## Confidentiality of data

- In specific circumstances, an aeroplane operator may request to its State of attribution not to publish data at the aeroplane operator level:
  - If the aeroplane operator operates a very limited number of State pairs
  - If aggregated State pair data may be attributed to an identified aeroplane operator as a result of a very limited number of aeroplane operators conducting flights on a State pair
- Based on received requests, the State will determine whether this data is confidential and will inform ICAO of any reported data deemed confidential

Reference: Annex 16, Volume IV, Part II, Chapter 2, 2.3.1.6, 2.3.1.7 and 2.3.2.3

## Data gaps in Emissions Reports

- A State can identify a data gap in its review of the verified Emissions Report submitted by the aeroplane operator and the verification body
  - If this occurs during the State's order of magnitude check of the Emissions Report (i.e. prior to submission of information to ICAO), the State will provide guidance to the operator regarding the way to address the identified data gap
- An aeroplane operator may not provide its annual Emissions Report in accordance with the timeline as defined in Annex 16, Volume IV, Appendix 1
  - If this occurs, the State shall engage with the operator to obtain the necessary information
  - If this proves unsuccessful, then the State shall estimate the operator's annual emissions using the best available information and tools (i.e. ICAO CORSIA CERT)



# Data Gaps – CO<sub>2</sub> Emissions

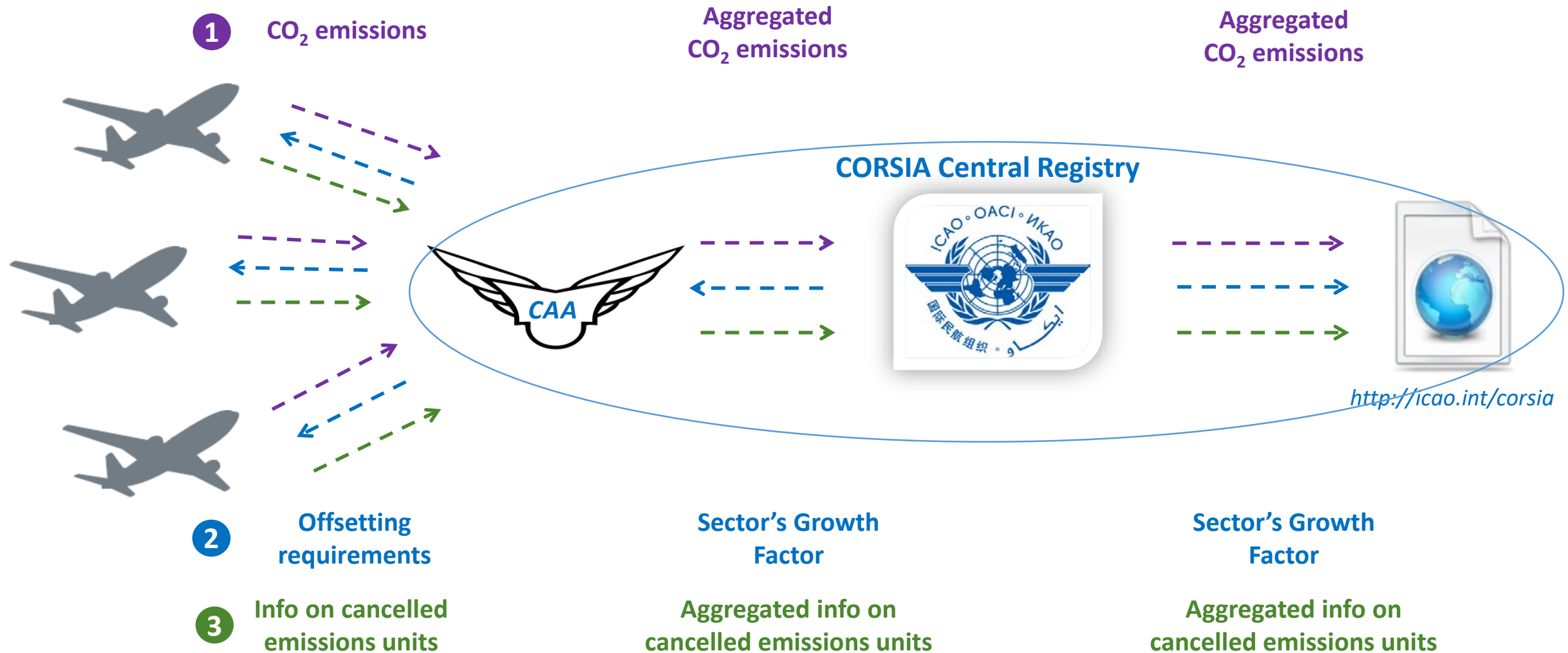
- If a State identifies a data gap in its review of the verified Emissions Report submitted by the aeroplane operator and the verification body:
  - The State will provide guidance to the operator regarding the way to address the identified data gap
- If an aeroplane operator does not provide its annual Emissions Report in accordance with the timeline as defined in Annex 16, Volume IV, Appendix 1:
  - The State must engage with the operator to obtain the necessary information
  - If the above proves unsuccessful, then the State must estimate the operator's annual emissions using the best available information and tools (i.e. ICAO CORSIA CERT)

# Data Gaps – CO<sub>2</sub> Emissions

- If a State does not submit CO<sub>2</sub> emissions data through the CCR, then ICAO will provide data in accordance with the provisions of Annex 16, Volume IV
  - The emissions gap is filled using traffic data (ADS-B) and the ICAO CORSIA CERT
  - The data will be used to estimate the total emissions for a specific year, and for the calculation of the Sector's Growth Factor that is used to determine the offsetting requirements of individual operators

Reference: Annex 16, Volume IV, Part II, Chapter 2, 2.5.2.2

# CORSIA General Information Flow



# Key Features of the CCR

The CORSIA Central Registry (CCR) has been implemented as an online and user-friendly web application that is hosted using Cloud services

## One CCR account per State

- Authorized users only (nominated by the State)
- Access to only one State account

## Secure interface

- Password protection - Authentication protocol
- Confidential data

## Simple info/data entry

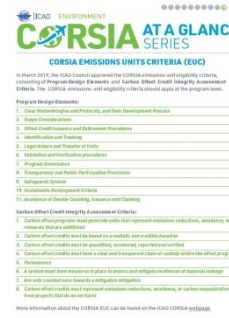
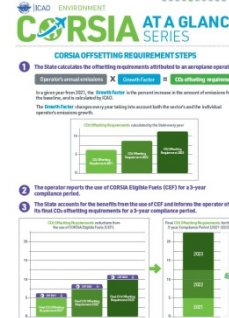
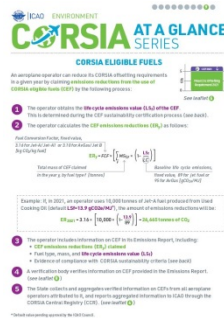
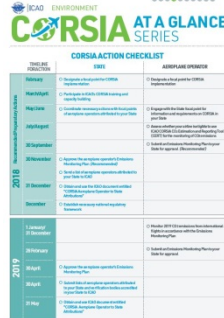
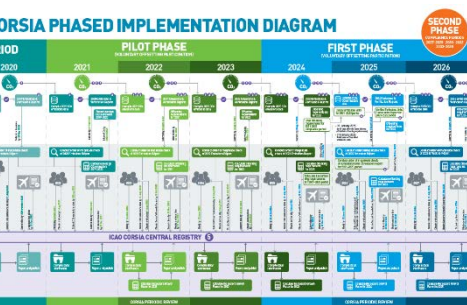
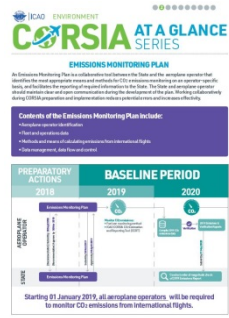
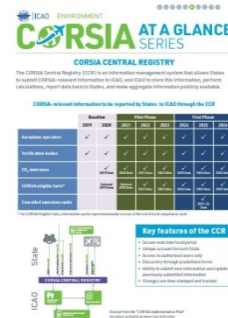
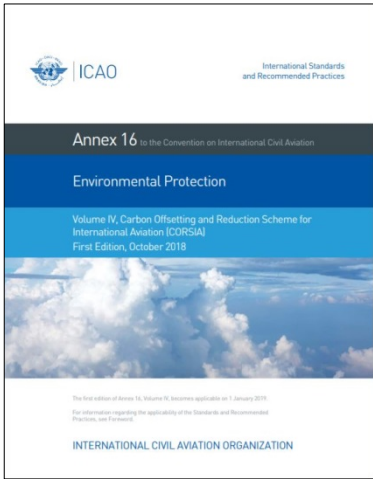
- Data entry through predefined forms
- Manual (one by one) and bulk upload possible

## Traceability and data integrity

- Time-stamped and recorded actions (who, what, when)
- No deletions; in case of re-submission, archive previous version

# 2022 CORSIA Deadlines

Date	Activity
30 April 2022	Aeroplane operators and verification bodies to submit to States the verified Emissions Reports and associated Verification Reports for 2021 CO <sub>2</sub> emissions.
1 May 2022 to 31 July 2022	States to conduct an order of magnitude check of the verified 2021 Emissions Reports, including any filling of data gaps in case of non-reporting by aeroplane operators.
30 June 2022	States to notify ICAO of any change in their decision to voluntarily participate in CORSIA for the pilot phase.
31 July 2022	Using the CCR, States to submit to ICAO aggregate 2021 CO <sub>2</sub> emissions.
31 October 2022	States to use the 2021 Sector's Growth Factor and calculate the 2021 offsetting requirements for the aeroplane operators attributed to them.
30 November 2022	Using the CCR, States to update their list of aeroplane operators that are attributed to them, and the list of verification bodies accredited in them.



Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

CORSIA News (click here to consult the complete list)

January 2020

Colombia received training under Phase Two ACT-CORSIA Buddy Partnership with Italy

CORSIA IMPLEMENTATION

- Assembly Resolution A40-19
- Reservation to Resolution A40-19
- SARPs - Annex 16 Volume IV
- Environmental Technical Manual - Volume IV
  - Templates
- ICAO CORSIA Implementation Elements
  - CORSIA States for Chapter 3 State Pairs
  - ICAO CORSIA CO<sub>2</sub> Estimation and Reporting Tool (CERT)
  - CORSIA Eligible Fuels
  - CORSIA Eligible Emissions Units
  - CORSIA Central Registry (CCR)

Additional Material for CORSIA Implementation



ACT CORSIA

- CORSIA Buddy Partnerships
- Model Regulations
- Frequently Asked Questions
- Brochure and Leaflets
- Videos
- Seminars
- Online Tutorials
- Background Information

For more information, please visit our website: <http://www.icao.int/corsia>